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ABSTRACT

The Reading Improvement Through Marine Environment Exploration Project involved five classes of fifth grade students from three schools in Staten Island, New York. It was funded under the Elementary Secondary Education Act, Title I. The classes were selected by principals and teachers from the respective schools on the basis of students' educational deficiencies related to reading. A total of 105 students participated in this two month program. It involved utilization of the resources of the Gateway National Park. The rationale for the program was that content related reading skills could be improved through actual investigative manipulative activities in a natural environment. It was predicted that this kind of activity would be supportive of reading and writing exercises. The program concentrated on three selected skills for reading in the content area: (1) fact, fiction, and opinion, (2) classification, and (3) construction and interpretation of graphs. Activities designed for students included: mapping the area they were working in, collecting material from the beach, studying wild life, and planting and raising flora indigenous to the shore area. An analysis of the subtest scores for each of the three SRA Reading Diagnostic "Probe" Tests concerned with fact and opinion, classification, and graphs, indicated significant differences between pre and post measures, even within the short time span and three times a week schedule of the program. (Author/Ad)

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EVALUATION REPORT FOR B/E FUNCTION NUMBER 20-53439

FINAL REPORT

READING IMPROVEMENT THROUGH MARINE ENVIRONMENT EXPLORATION

April 7, 1975 -- June 16, 1975

Dr. Eric R. Brown

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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An evaluation of selected New York City Umbrella Programs funded under a Special Grant of the New York State Legislature performed for the Board of Education of the City of New York for the 1974-1975 school year.

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Dr. Anthony J. Polemeni, Director

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Chapter 1

THE PROGRAM

This project involved five classes of fifth grade students from three schools in School District 31, Staten Island. These classes were selected by principals and teachers from the respective schools (P.S. 50, P.S. 38, and P.S. 1) on the basis of educational deficiencies related to reading. It was their considered opinion that these children would profit from additional motivation transcending the traditional approach to reading improvement. A total of 105 students participated in the program.

The experimental program involved utilization of the resources of the newly established Gateway National Park, a federal govenment facility on 1200 acres of land located at Great Kills, Staten Island. The coastal area, beach, and marshland environment combined with the educational facility offered a unique opportunity for an outdoor educational environment. The administration of the park consented to participate in expanding their educational operation to assist the local school district with this reading improvement program.

The rationale for the program was that content related reading skills might be improved through actual investigative, manipulative activities in this natural environment that naturally led to supportive reading and writing exercises. Many urban children have little opportunity to have experiences with nature or basically uninhabited areas of woodlands. It was felt there was a need to teach such children certain skills of reading to master content related to environmental problems. Reading and study skills were to be specifically taught that would enable the students to read efficiently and solve problems in a specific curriculum area. The program concentrated on three selected skills: (1) Fact, Fiction, and Opinion; (2) Classification; and (3) Construction and Interpreting Graphs. It was expected that there

would be significant improvement in these content area reading skills as measured on a pre-post Science Research Associates "Probe" Test.

The program began on April 19, 1975 and was concluded at the end of the school year, June 16, 1975. During this period, a bus, provided by the Umbrella Program, took three classes per day (two on Friday) from their respective schools and brought them to the Gateway National Park Laboratory. Here the students participated in a two part program of a field experience and a language arts-reading sequence that followed up on the field work. Each class received one hour and fifteen minutes of instruction on a thrice weekly basis.

Activities were designed to have students map the field area they were working in, collect material from the beach, shore line, and sand dunes at Gateway, study wild life, and plant and raise flora indigenous to the shore area. Each class period usually consisted of a brief orientation lesson, the appropriate field experience, and a set of reading activities designed to capitalize on the day's activities. In addition to the natural marine environment, the Gateway facility made available the use of a wet room for investigating collected materials and a large classroom in which reading improvement activities could be conducted. Program funds were used to hire one full-time science teacher to direct field experience and reading activities at the center. Additional expenses were concerned with learning materials and bus transportation for the children.

In actuality, there were three principal units of instruction in the field work experience as explained by the coordinating teacher. The first unit dealt with the construction of maps, from simple maps up through maps involving symbols, scale, compass directions, and contours. The

second unit was concerned with exploration of beach plants and environmental factors contributing to growth. The children during this unit devised experiments for varying some need of plants and carried out these experiments themselves. This was an ongoing project which continued to the conclusion of the program. The third unit involved setting up salt water aquaria. The children learned all the components and functions of the set up, collecting all sea water, shells, and live organisms which went into the tanks. Finally, a brief unit on environmental pollution brought the program to a conclusion.

Extensive content-related reading materials were developed with the cooperation of Richmond College of the City University of New York, reading coordinators associated with the district, and the participating schools. A sample of these materials can be found in the original project proposal. Materials were constructed that were compatible with the ecology theme of the field experience and which were directly supportive of the content area reading skills outlined above. This is an example of the type of cooperative, voluntary planning between various federal and local agencies that was one of the most exemplary features of this pilot project.

Chapter II

EVALUATIVE PROCEDURES

Evaluation Objective #1: To determine whether, as a result of participation in the program, students show a significant increase in reading comprehension and study skills.

Subjects: All participants in the program.

Methods and Procedures: Subsections of the SRA Reading Diagnostic "Probe" Tests that are concerned with the mastery of reading comprehension

and study skills to be administered on a pre-post basis (4/19/75 and 6/19/75 repectively). These test batteries to be used to assess any significant progress in these reading skills.

Analysis of Data: Summated data to be analyzed with a correlated t test design.

Evaluation Objective #2: To evaluate the extent to which the program, as actually carried out, coincided with the program as described in the project proposal.

Subjects: All participants in the program.

Methods and Procedures: In order to evaluate the quality and extent to which the program had been implemented, close monitoring of the program was carried out by conducting a site visit at the end of the project period; by examining rosters of students and personnel participating in the project, along with other documents related to the implementation of the program; and by maintaining contact with the project coordinator in order to obtain data on all aspects of the functioning of the project.

Analysis of Data: A statement concerning the extent of implementation of the program to be made, and, where serious discrepancies exist between proposal and program, to provide a description of these discrepancies.

Several limitations were imposed on these evaluation procedures because of delays in implementing the evaluation design. With regard to Evaluation Objective #1, the same form of the subsections of the SRA diagnostic test were used for both pre and post testing. Some effort to circumvent this problem was expended by using a t test for correlated means. With regard to Evaluation Objective #2, a final data-gathering and site visit was confined to the collection of data and discussion of the program with project personnel.

Chapter III

FINDINGS

Evaluation Objective #1: To determine whether, as a result of participation in the program, students show a significant increase in reading comprehension and study skills.

Subtest scores for each of the three SRA Reading Diagnostic "Probe" Tests concerned with fact and opinion, classification, and graphs, were summed for a composite score for each student. The possible range of scores was from 0 to 60 items correct. A t test for correlated means was performed between pre and post measures. Table I summarizes the principal results. As will be noted, a significant difference exists between the pre and post means, $t.05_{(104)} = 1.79$. While this result would appear to support the hypothesis of significant growth, it must be tempered by the fact that the same form of the test was used on both occasions, and that testing twice within so short a time span usually only serves to establish the reliability of the original test instrument. With these qualifications in mind, it can be concluded that a significant gain in reading and study skills took place within the context of the program.

TABLE 1

MEANS, STANDARD DEVIATIONS, AND CORRELATED T TEST

BETWEEN PRE AND POST TESTINGS, N=105

	Pre	Post
Mean	44.49	45.67
S.D.	6.69	7.66
t Score	1.79*	

*p. < .05

Evaluation Objective #2: To evaluate the extent to which the program, as actually carried out, coincided with the program as described in the project proposal.

It would appear that to a remarkable degree, the program as proposed was implemented in the brief duration of this project. The only possible comment here is that the brevity of the program period (two months) mitigated against substantial growth in reading achievement. Discussions with the project coordinator and science teacher indicated that the facilities provided by Gateway National Park were admirably suited to instructional purposes, and that equipment and materials ordered arrived in time to be of substantial assistance. Finally, it should be noted that the degree of cooperative planning for this experimental program suggests that considerable attention was given to the selection of fifth grade classes of educationally disadvantaged students who might maximally benefit from the additional motivation for learning inherent in this situation.

Chapter IV

SUMMARY OF MAJOR FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

The major finding of this report is that both evaluation objectives were fulfilled. A significant difference in summated reading scores was found between pre and post measures, even within the short time span and three times a week schedule. Furthermore, the program as achieved, closely matched that outlined in the program proposal. Facilities were excellent and appropriate teaching materials, both formal and informal, were plentiful. It is reasonable to conclude that within the context of the evaluation objectives, the program was successful.

The present evaluator would commend the cooperative planning that made this program possible and suggest that the program period might be extended beyond the two month's duration of this experiment. A further suggestion would be the establishment of a permanent facility at the Gateway Center which could be used throughout the academic year. The placement of a full-time reading teacher on the staff, in addition to the current science instructor, would strengthen the reading and study skills component of the program.

It is the recommendation of the evaluator that the program be continued for the next academic year on the basis of this year's positive pilot program results. Further utilization of the natural resources of Gateway National Park for teaching purposes would appear to bear good chances for success on the basis of this year's results.